



# Computer Science Seminar



## Programming Support for Big Data Applications

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**Monday, March 30, 2015 at 2:00 pm**  
**Room: CS 209**

**Abstract** - Big data is characterized by its volume, velocity and variety, and applies to information that exceeds the processing capacity of conventional database systems. It provides tremendous opportunities but also imposes great challenges. Among the others, how to provide effective and efficient support for programming with big data has attracted a lot of attentions from both researchers and practitioners. Various system platforms have been developed for big data management and processing. In this talk, I will focus on programming models for big data applications. I will describe the requirements and difficulties of developing big data processing platforms, review existing works, and briefly introduce approaches to tackle the challenging issues in big data programming. I will then describe MatrixMap, a new programming model developed by our lab for high level abstraction and efficient implementation of matrix operations which are heavily used by data mining and graph algorithms.

**Brief Bio** - Dr. Cao is currently a chair professor and head of the Department of Computing at Hong Kong Polytechnic University, Hung Hom, Hong Kong. His research interests include parallel and distributed computing, computer networks, mobile and pervasive computing, fault tolerance, and middleware. He has co-authored 4 books, co-edited 9 books, and published over 300 papers in major international journals and conference proceedings. He is a senior member of China Computer Federation, a fellow of IEEE, and a member of ACM. He was the Chair of the Technical Committee on Distributed Computing of IEEE Computer Society from 2012-2014. Dr. Cao has served as an associate editor and a member of the editorial boards of many international journals, including *ACM Transactions on Sensor Networks*, *IEEE Transactions on Parallel and Distributed Systems*, *IEEE Transactions on Computers*, *IEEE Networks*, *Pervasive and Mobile Computing Journal*, *Wireless Communications and Mobile Computing*, *Peer-to-Peer Networking and Applications*, and *Journal of Computer Science and Technology*. He has also served as a chair and member of organizing / program committees for many international conferences, including PERCOM, INFOCOM, ICDCS, IPDPS, ICPP, RTSS, DSN, ICNP, SRDS, MASS, PRDC, ICC, GLOBECOM, and WCNC.

Dr. Cao received the BSc degree in computer science from Nanjing University, Nanjing, China, and the MSc and the Ph.D. degrees in computer science from Washington State University, Pullman, WA, USA.